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ENTROPION IN NEWBORN LAMBS

BY

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INTRODUCTION

Although congenital entropion in lambs is apparently so common in the United States of America that Newsom (1952) states that " all practitioners who handle sheep have seen this disease," the only published references to its occurrence in Great Britain are those of Ellis (1943) and Wright & Formston (1943), who describe the occurrence of the condition in single flocks, and a brief mention by Formston (1952). No reference to entropion has been found in recently published Australian or French text-books on the diseases of sheep (Belschner, 1950; Craplet, 1950; Pommier, 1952). In Germany, Oppermann (1950), under the heading of entropion, merely refers to the findings of Skidmore (1928) and Marsh (1932) in America, and to a report by Baranow (1937) in the Ukraine, on a congenital defect consisting of a notch in the upper eyelid of Karakul sheep. Ellis (1943) quotes a sheep-breeder as mentioning that the Russians are familiar with the condition, but there appears to have been no Russian contribution to the literature on this subject during the last 20 years, and no Russian text-books have been accessible for consultation.

The earliest American reference to entropion in lambs that has been found is that of Baker (1920), who describes it as being " rather common in long-wool breeds." Hadley & Warwick (1927) and Reed (1927) mention it briefly, without giving any details of breed or incidence. The first major contribution is that of Skidmore (1928), who reviews the literature on entropion in the dog and horse, and records his own observations made over a period of years in a flock consisting of 125 sheep of the Oxford Down, Hampshire Down, Southdown, Rambouillet and Shropshire breeds. Entropion requiring surgical treatment was observed only in Shropshire lambs, in which breed the incidence in one season was nearly 50 per cent. Slight cases were also seen in Rambouillet lambs but these always recovered without surgical interference. Marsh (1932) mentions entropion as being commoner in " black-faced " lambs than in those of other breeds.

In this country Ellis (1943) briefly describes the occurrence of entropion in a small flock of Oxford Down sheep in which 27 per cent. of the 34 lambs were affected. Wright & Formston (1943) give a detailed record of their observations made during four successive seasons in a flock of halfbred (Border Leicester × Cheviot) ewes mated to Hampshire Down rams; 8·2 per cent. of the 802 lambs born during this period were affected. Formston (1952) mentions the treatment of entropion in lambs but gives no further information on breed or incidence. Cross (1952) has seen a case of entropion in a small Border Leicester flock in Cheshire, and Pinsent (1953) has seen one case in a Hampshire × Clun Forest flock.

As entropion in the dog has long been recognised as having a hereditary tendency, it might be expected that a similar tendency would be found in sheep. Hadley & Warwick (1927) state that " nowadays most structural defects of newborn animals are regarded as heritable " and specify entropion in lambs, dogs and horses as possibly being heritable, " as it seems to occur with greater frequency in certain breeds of these species than in others." This tendency to occur more commonly in certain breeds is well illustrated by the observations of Skidmore (1928), who gives it as his opinion that the condition is an " inherited congenital structural anomaly." Marsh (1932) is also of the opinion that it may be hereditary. Ellis (1943) implies that the Russians regard the condition as hereditary, and Wright & Formston (1943) suspect not only that the condition is hereditary but that it may be transmitted by the male.

The purpose of this paper is to record clinical observations on entropion made in a number of flocks in the south-east of Scotland and in individual sheep at this Institute, and to give the results of a small experiment designed to show whether the condition does in fact show a hereditary tendency.

CLINICAL OBSERVATIONS

Note.—For convenience, certain local names for the commoner crosses are used in the text. These are:—

Halfbred—Border Leicester × Cheviot.
Greyface—Border Leicester × Blackface.
Cross Oxford—Oxford Down × Halfbred.
Cross Suffolk—Suffolk Down × Halfbred.

" Cheviot " for the purposes of this paper means the large north-country type of sheep commonly used for producing halfbred lambs, as opposed to the small south-country type.

In the lambing seasons of 1950, 1951 and 1952, during the course of repeated visits to each of 100 or more breeding flocks in the south-east of Scotland, the opportunity arose of inspecting at close quarters, although necessarily briefly, many thousands of newborn lambs. It was noticed by chance that " sore eyes " were common in young lambs in many of the flocks. On closer inspection these lambs were almost invariably found to be suffering from entropion. As these observations were only incidental to the main purpose of the visit, no detailed records were obtained, but a considerable number of clinical notes were made at the time. These are summarised below.

1. *Distribution*

Entropion was found to occur in not less than 50 per cent. of the 100-odd flocks that were visited regularly. These flocks, comprising some 30,000 ewes, were situated in Berwickshire, Roxburghshire and Selkirkshire.

2. *Incidence*

This could not be determined with any accuracy. In some flocks only a few cases were seen, whereas in others

the condition appeared to be very troublesome, perhaps 10 per cent. of the lambs being affected. In the majority of affected flocks the incidence probably did not exceed 3 to 4 per cent.

3. *Breed*

Of the 23 flocks of (north-country) Cheviot ewes mated to Border Leicester rams to produce halfbred lambs, 65 per cent. were affected. The one Cheviot flock producing purebred lambs was not affected. Of the 78 flocks of halfbred ewes mated to Oxford Down or Suffolk Down rams to produce Down cross lambs, 46 per cent. were affected. Although the flocks using Suffolk Down rams were affected in almost exactly the same proportion as those using Oxford Down rams, a strong impression was gained that both the incidence and the severity of the condition were greater in cross Oxford lambs than in cross Suffolk lambs, but as only the first instance of entropion in any one flock was recorded in writing at the time, no figures can be given in support of this impression.

On several of the farms visited, a small pedigree flock of Border Leicester, Oxford Down or Suffolk Down ewes was maintained in addition to the commercial flock of halfbred ewes. Entropion was noted as occurring in seven out of the eight such Border Leicester flocks, three of the eight Oxford Down flocks and none of the three Suffolk Down flocks.

In connection with the wide distribution of entropion in Cheviot flocks in which the ewes are mated to Border Leicester rams, it should be mentioned that in certain of the Cheviot flocks it is the practice to mate the gimmers and sometimes also the one-crop ewes to rams of their own breed, the remaining ewes being mated to Border Leicester rams in the usual way. No case of entropion was seen in any of the purebred (*i.e.*, Cheviot) lambs, although entropion was frequently noted in the halfbred lambs in the same flock.

Further evidence relating to the effect of the Border Leicester ram was obtained from observations made in a flock of 170 cross Suffolk gimmers, 66 per cent. of which were mated to two purebred Border Leicester rams and the rest to a Border Leicester × Suffolk Down ram. The gimmers, which were homebred, were known to have had a very low incidence of entropion; as the rams had been bought in, the condition of their eyes at birth was unknown. The lambs sired by the purebred Border Leicester rams showed a high incidence of entropion, whereas those sired by the Border Leicester × Suffolk Down ram were almost free from entropion. Moreover, although entropion is rare, if not unknown, in the Scottish Blackface breed (see below) it has been reported to occur (Miller, 1952) in Greyface (Border Leicester × Blackface) lambs in one Perthshire flock.

At this Institute entropion has been observed in purebred Dorset Horn and in Dorset Down × Dorset Horn lambs. The Dorset Horn ewes, carrying the pure- or cross-bred lambs *in utero*, were obtained in several successive years from a breeder and dealer in Dorset. Not all of the ewes came from this breeder's own flock, but on enquiry it was learned that " inturned eyelids " in Dorset Down, Dorset Horn and crosses between these two breeds were recognised and successfully treated by the shepherd, who added that the incidence varied from year to year but was never high.

No case of entropion has been seen in purebred Scottish Blackface lambs either at this Institute or in the 30-odd flocks in the south-west of Scotland that have been visited at lambing time, but one (unusually intractable) case has been encountered here in a Blackface × Greyface ewe lamb (see also above). This lamb's twin sister and 12 other lambs of the same cross were normal-eyed. Entropion has been seen also in one of a pair of lambs by a Blackface ram out of a normal-eyed Dorset Down × Dorset Horn ewe.

Isolated cases of entropion have also been seen here in lambs sired by a Cheviot ram and by a Border Leicester × Suffolk Down ram out of various small groups (20 to 50) of Dorset Horn, cross Oxford and Greyface ewes.

(It may be noted here that although the Oxford Down and the Dorset Down are derived very largely from the Hampshire Down (Wallace, 1910), the occurrence of entropion also in the unrelated Border Leicester, Dorset Horn and Shropshire breeds suggests that the factor responsible for the condition is widely distributed throughout the species. The close breeding practised in many ram-producing flocks may well have led to the present high incidence in certain breeds.)

4. *Sex incidence*

Unfortunately the sex of only a very few of the large number of affected lambs seen in the field was recorded; nine of these were males and 15 females. Of the affected lambs born at this Institute during the past three years eight have been males and 18 females.

5. *Incidence in twins and triplets*

It is very common to find only one twin (or triplet) affected—sometimes severely—and the other(s) normal, whether of the same or opposite sex. In twins of opposite sex, where only one is affected, this may be either the male or the female.

6. *Eyelid affected*

Only the lower eyelid has been seen to be affected, even in weak lambs with sunken eyes.

7. *Eye affected*

Entropion affects either or both eyes. Approximately 40 per cent. of all lambs for which such records have been kept were affected bilaterally, but the proportion of bilaterally affected lambs was greater in flocks in which the incidence was high than it was in flocks having a low incidence.

8. *Sequelae*

If the condition is bilateral, as is not uncommon, total blindness may result. Less severe entropion may lead only to chronic conjunctivitis. Sometimes the inturning of the lid is so slight that it corrects itself spontaneously, either soon after birth or as the lamb grows older.

9. *Economic importance*

In lambs intended for slaughter the loss of one eye is not regarded as serious, but bilateral entropion resulting in blindness not only causes a check in growth on account of the pain and the lamb's inability to find its way rapidly back to its dam, but renders the unfortunate animal a nuisance to the shepherd when, for example, the flock has to be driven past an obstacle such as a gatepost. In lambs that are to be sold as breeding stock, unilateral blindness, or, to a less extent, entropion causing chronic conjunctivitis, is a potential detraction from their market value, although under the prevailing system of sale in the auction ring such blemishes often pass unnoticed until the sheep have reached the purchaser's farm.

10. *Aetiology*

No structural abnormality of the eyelid, or indeed of any part of the eye or its adjacent structures, can be detected clinically. Since the great majority of affected lambs are

normally vigorous and well developed, it is unlikely that there is any reduction in post-orbital fat. It therefore appears that entropion in newborn lambs is a spastic condition, such as occurs in young thoroughbred foals (Leader, 1952), rather than the well-known, gradual inturning of the eyelid that occurs in the young of certain breeds of dog, notably the Chow. Presumably the eyeball is drawn backwards by the contraction of the retractor oculi and possibly the combined action of the straight and oblique muscles of the eye. Together with a spasm of the orbicularis oculi, this would tend to make both eyelids turn inwards, but as the upper eyelid is stiffened by the well-developed cartilaginous tarsal plate, only the relatively unsupported lower eyelid actually does roll inwards. When a severe inturning has occurred the acute irritation caused by the rubbing of the eyelashes and hair against the cornea ensures that the eyeball will remain drawn back to the maximum extent, and so almost eliminates the possibility of spontaneous recovery.

11. *Treatment*

Provided that treatment was given within an hour or two of birth (as is fully practicable under the system of close husbandry employed in the district under consideration), that is to say before conjunctivitis had developed, simple correction of the inturning by manipulation was successful in a large number of cases. Sometimes the turning out of the lid had to be repeated several times in quick succession before the normal position was maintained. (In either case, it is advisable to inspect the eyes again in about two or three hours' time. If entropion has not recurred within this period it is unlikely to reappear later.) In the comparatively few newborn lambs that failed to respond to such treatment, the instillation of a few drops of a 4 per cent. solution of cocaine hydrochloride into the conjunctival sac after correction was strikingly effective in preventing recurrence in all but two weak lambs with naturally sunken eyes. Treatment with a corneal anaesthetic was adopted on the assumption that the principal cause of recurrence of entropion after correction is the retraction of the eyeball, in response to the contact of the slightly inflamed corneal conjunctiva with even the conjunctival surface of the lid. If the cornea is anaesthetised the slight conjunctivitis has an hour or two in which to resolve before there is a risk of recurrence of the acutely irritating entropion.

In lambs over 48 hours old, in which keratitis had developed, even repeated correction was rarely effective. Anaesthetisation of the cornea produced temporary relief from entropion, but this usually recurred as soon as the effects of the cocaine had worn off. Although repeated correction combined with judicious application of the local anaesthetic is effective in curing the condition even at this stage, such treatment is impracticable for the shepherd. Surgical intervention is therefore indicated in lambs more than 48 hours old, should the value of the lamb justify the procedure. It may be mentioned here that although very few of the shepherds of the commercial flocks under consideration were aware even of the reason for the lambs' "sore eyes," all but one of the shepherds in charge of the Border Leicester flocks were aware not only of the cause, but of various methods of treatment of "sore eyes." Some smeared the lower eyelashes against the outside of the eyelid with various ointments; some used rubber bands passing round the head to hold the eyelid in place, and so on. The shepherds in the three affected Oxford Down flocks also recognised the condition. Since a pedigree ram lamb would be the only type of sheep sufficiently valuable to warrant individual professional treatment at this age, it is not surprising that the occurrence of the condition in lambs has received so little attention in this country.

Experimental

Of 50 Dorset Down × Dorset Horn lambs born at this Institute in the early winter of 1950, 11 (22 per cent.) were affected with entropion. The affected lambs were born to 10 (25 per cent.) of the 39 ewes. The first nine affected lambs to be born were all females (one of them twin to a normal-eyed male) and were all born without assistance. The last two affected lambs were both males and were born in circumstances that deserve mention. Both were large single lambs and both required an assisted delivery. In the first (Ram A) both forelimbs were completely retained, and the head had been outside the vulva for long enough for the face, including the upper eyelids, to become oedematous. The foetus was returned to the uterus by pressure on the head, the forelimbs brought forward and delivery effected in the usual way. The lamb was then swung by its hind legs in order to revive it. As it was unusually large its head brushed against the straw bedding several times. When its eyes were inspected a few minutes later it was found to be suffering from unilateral entropion. This responded to a single correction. The other male lamb (Ram B) was relatively oversized and was presented with the nose level with the forefeet. Again the head had to be pressed back while the limbs were brought forward for delivery. This lamb was also swung by the hind legs to stimulate respiration. The eyes were then briefly inspected and no abnormality noted. At a second inspection 24 hours later the lamb was found to be moderately affected with entropion in one eye. It was also noted that the upper eyelid of this eye was swollen. The entropion was corrected and thereafter did not recur. These details are given in order to explain why there is some doubt as to whether these two ram lambs, later used for breeding, were in fact affected with entropion in the same way as the ewe lambs—the first because of the swelling and manipulation of the face and the second because of the manipulation of the face and the fact that entropion appeared not to have been present at birth.

At approximately one year old the nine affected females were mated, in groups of three, to the two rams A and B, and to a normal-eyed ram (C) that had been born twin to a bilaterally affected female. As one ewe failed to settle to Ram A and two to Ram B, these ewes were then mated by Ram C in addition to his three selected ewes, all of which had settled to their first service.

Of three lambs (single male, twin male and female) sired by Ram A (probably affected), the male twin was very slightly affected with entropion in one eye. The degree of inturning was so slight that it would ordinarily have passed unnoticed. The other two lambs were normal-eyed.

Of two lambs (twin male and female) sired by Ram B (possibly affected) both were normal-eyed.

Of seven lambs (four female, three male, out of five ewes one of which was the ram's sister) sired by Ram C (normal-eyed) all were normal-eyed.

By the following season, another ram (1877) was available. This animal, which in maturity resembled a north-country Cheviot, was by an unknown sire out of a cross Oxford ewe and had been bilaterally affected with entropion at birth (which had been unassisted). To the nine Dorset Down × Dorset Horn ewes was added one pure-bred Dorset Horn gimmer that had been bilaterally affected with entropion. All of these 10 females were mated to the new ram.

Of 20 lambs (10 males, 10 females) born of these matings six (30 per cent.) were affected with entropion, all but one to an extent likely to interfere with vision. The six lambs (three males, three females) were all out of different ewes, and all but one (a single) were twins (or triplets) to normal-eyed lambs. In the same season Ram 1877 was mated also to six Dorset Horn ewes and one halfbred ewe all of unknown history as regards entropion. Of the 14 lambs born only one (7 per cent.) (out of a Dorset Horn ewe) was affected with entropion.

The high percentage of affected ewes (six out of 10) giving birth to affected lambs when mated to Ram 1877 is rendered more significant by a consideration of the degree to which the ewes were themselves affected at birth.

Of the four ewes that gave birth to normal-eyed lambs:—

Two had been only slightly affected in one eye.
One had been severely affected in one eye.
One had been affected slightly and moderately respectively in both eyes.

Of the six ewes that gave birth to affected lambs:—

One had been moderately affected in one eye.
One had been severely affected in one eye.
Four had been moderately or severely affected in both eyes.

If the degree of entropion is graded 1, 2 or 3 for each eye according to whether the inturning is slight, moderate or severe respectively, the four ewes that gave birth to normal-eyed lambs had themselves been affected to an average degree of 2, whereas the six ewes that gave birth to affected lambs had been affected to an average degree of 3·7. (Ram 1877 had been affected to a degree of 4. The six lambs were affected to an average degree of 2·2.) Although the condition is clearly not inherited as a simple Mendelian recessive character, the above experiment suggests that it has a hereditary tendency.

Summary

1. The literature on entropion in lambs is briefly reviewed.

2. The widespread occurrence of congenital entropion in newborn lambs in the south-east of Scotland is described with particular reference to breed incidence.

3. Treatment is briefly mentioned, emphasis being laid on correcting the condition within an hour or two of birth, when it will be found unnecessary to resort to surgical procedures.

4. Details are given of a small breeding experiment showing that although the condition is not inherited as a simple Mendelian recessive, it has a hereditary tendency.

Acknowledgment.—It is a pleasure to record my thanks to Miss M. M. Raymer, Librarian, Royal College of Veterinary Surgeons, for her valuable assistance in searching the literature for references to the subject of this communication.

[Since this paper was completed entropion has been observed in Cheshire in a small flock consisting of Clun Forest ewes mated to an Oxford Down ram. Seven (approximately 12 per cent.) of the lambs of this cross were affected. They were out of six different ewes (approximately 20 per cent.).—A. I. L.]

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[Photograph by Fenton Studio, 86, Woodlands Road, Glasgow, C.3

Reunion at Glasgow.—Graduates present at Glasgow University Veterinary Medical Association Annual Ball, February 12th, 1954.

THE USE OF A LIVER EXTRACT (VITAMIN B PREPARATION) IN SCOURING IN YOUNG PIGLETS

BY

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Introduction

Scouring in young piglets is one of the most serious causes of economic loss in the pig industry, for invariably condition is lost that is never recovered and the pigs affected take well over seven months to reach bacon weight. In addition, one or two piglets in each litter affected become very stunted, and either die or have to be killed.

Many factors have been implicated and two points are quite clear. Firstly, piglets given free access to clean grazing are rarely affected. Secondly, the majority of cases occur from January to March each year. It might appear, then, that chilling and/or some deficiency are predisposing if not exciting factors. In the herds concerned in this trial many treatments and preventatives had been used without real success. Trace element mixtures were found effective in preventing scour in a few herds in the same area; but because the majority of herds did not respond a new remedy and prophylactic was sought.

Observation

Thirty-six litters in six swine herds comprising Large White, Saddleback, both pure and crossed, and one herd of Berkshires are involved. They were chosen because scouring in piglets in these herds has always been prevalent.

Hepacon B Forte is "an injectable solution containing liver extract, vitamin B_{12}, vitamin B pyrophosphate and folic acid." The product was injected in doses of $\frac{1}{2}$ to 1 c.c. subcutaneously on the inner aspect of the thigh. The substance was apparently absorbed by the following day and no inflammatory reaction was noticed. In 228 pigs already scouring no change was noticed until the second day, when the faeces gradually became darker in colour and less fluid, until by the third day diarrhoea had ceased. During this time the piglets became more lively and lost their unthrifty appearance. The hair became flat, smooth and healthy again. The 90 piglets dosed prophylactically at three days old showed no change but continued to thrive well, and none developed diarrhoea.

Of the 228 piglets dosed therapeutically, eight needed a second dose five days later. None of these, however, developed into chronic cases, for all were seen within a few days of scouring commencing.

One store pig five months old and two sows were also injected because of debility and inappetence. They showed only a slight improvement.

Summary

A new product has been demonstrated to be very effective in treatment and prevention of scouring in young pigs. It is not dangerous, and being injectable it obviates the trouble of oral administration of tablets and fluid, which in this age of piglets is not easy.

Acknowledgment.—I am indebted to Consolidated Chemicals for supplies of Hepacon B Forte.

PRELIMINARY COMMUNICATION

THE USE OF FURAZOLIDONE IN THE TREATMENT OF EXPERIMENTAL FOWL TYPHOID

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During studies, which are still in progress, on the chemotherapy of experimental fowl typhoid, one agent, furazolidone, has been found to be greatly superior to all others so far tested. The great disadvantage of the other agents was that infected chickens, having been treated with them, frequently continued to excrete *Salm. gallinarum* in their faeces, and, consequently, were a source of danger to healthy chickens. Since fowl typhoid is now a serious problem in some parts of Great Britain it seemed advisable to publish a preliminary communication on the use of furazolidone so that it could be evaluated in the field without unnecessary delay.

Furazolidone is one of the nitrofurans, its formula being N-(5-nitro-2-furfurylidene)-3-amino-2-oxazolidone. For use it was mixed in a commercial mash to give a final concentration of 0·02 per cent.

Sex-linked Brown Leghorn × Barred Rock cockerels, aged approximately nine weeks, were used in these investigations. They were fasted for 18 hours and then given 50,000,000 viable *Salm. gallinarum* bacteria in alkaline medium by mouth. At different times after infection, groups of 30 of these chickens were fed the furazolidone mash *ad lib.*

At 17 and 24 days after infection the survivors were submitted to the whole blood plate agglutination test using an antigen prepared from a culture of *Salm. gallinarum* and their faeces examined for the presence of this organism, selenite F medium and desoxycholate-citrate agar being used for this purpose.

The results of one series of experiments are shown in the following table.

	Group 1	Group 2	Group 3	Group 4 Controls
Time after infection when treatment was commenced (days) ...	4	4	2	—
Duration of treatment (days) ...	6	12	6	—
% of 30 chickens that died ...	0	3·3	3·3	70
% of survivors that developed agglutinins	0	0	3·3	100
% of survivors excreting *Salm. gallinarum* in their faeces ...	0	0	3·3	100

Of a total of 90 chickens that were treated only two died. Only one of the 88 survivors developed agglutinins to *Salm. gallinarum*, this chicken also being the only one found to be excreting *Salm. gallinarum* in its faeces after treatment was discontinued. In contrast 21 of the untreated chickens died, and the nine survivors were positive to the agglutination test and were excreting *Salm. gallinarum* in their faeces.

No toxic symptoms were noted when mash containing 0·02 or 0·04 per cent. furazolidone was fed continuously to day-old and four-week-old chickens for three weeks.

Acknowledgment.—I am grateful to Messrs. A. J. White Ltd. for the supply of furazolidone.

CLINICAL COMMUNICATIONS

RECOVERY IN A HEIFER FOLLOWING THE SLOUGHING OF AN EXTENSIVE INTESTINAL CAST

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Subject.—Pedigree Ayrshire heifer aged two years.

History.—This was one of several animals purchased at a private sale to form a new herd. For several days following purchase blood-stained faeces were passed but this was not reported at the time as the milk yield and general condition appeared normal. On the afternoon of the sixth day a sudden drop of 6 lb. in the milk yield occurred. That evening advice was sought regarding the severe diarrhoea that had commenced.

EXAMINATION AND TREATMENT

October 8th, 1953.—Temperature 102°. Respiration and pulse rates were markedly increased. There was acute abdominal pain. Abdominal auscultation revealed strong peristaltic sounds while watery faeces were being voided in prodigious quantities. With insufficient history no firm diagnosis was established. However, Sulphamezathine therapy was adopted, 150 c.c. of the 33⅓ per cent. solution being injected intravenously.

October 9th, 1953.—Temperature 102°. Respiration and pulse rates were normal. There was no evidence of abdominal pain and the heifer was now eating some hay. The faeces were much firmer. While examining the faeces a cast of the intestinal mucosa was discovered. This was 12 feet 3 inches long.

Treatment was continued with oral Sulphamezathine, and the heifer continued to improve rapidly. The faeces were of normal consistency and showed no signs of blood. The milk yield fluctuated for some days but gradually returned to the normal level.

Laboratory examination of the cast and faeces revealed no pathogenic organisms.

* * * * *

ACTH THERAPY OF TARSAL SHEATH ENLARGEMENTS WITH ASSOCIATED LAMENESS

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The subject was a pedigree Aberdeen Angus bull, aged 13 months, with an enlarged hock joint and a localised swelling on the anterior aspect of the hock. This enlargement gradually became worse when exercise was increased prior to showing. The conformation of the hind legs of the bull was not sound, as there was considerable knuckling of the hind fetlocks causing extra strain on the tendons accompanied by hypertrophy of the bursal linings.

The diagnosis was one of tarsal sheath enlargement, over the anterior medial aspect of the trochlea of the astragalas with a secondary swelling above the hock at the site of thorough-pin.

The associated lameness may have been aggravated by the action of the stockman who had pared the bull's heels in an attempt to overcome the knuckling of the fetlocks. The enlargement of the hock and the lameness had become worse after the paring of the heels.

The application of iodine ointment to the swellings, and complete rest, were adopted as palliative treatment. No favourable effects were seen after three weeks, and this treatment was superseded by the intramuscular administration of ACTH. The initial dose was 40 international units ACTH given intramuscularly in 1·2 ml. of sterile solvent per 10 international units ACTH. The administration of 20 international units ACTH in 1·2 ml. solvent per 10 units ACTH was continued each day for the next four days. Sodium salicylate and vitamin K were also given during this period in the dosage: sodium salicylate 4 grammes four times daily, together with vitamin K, 4 mg. four times daily.

Following this combined treatment there was a spectacular improvement. The lameness had virtually disappeared before the completion of the four days' treatment, and the swelling of the tarsal sheaths had almost completely subsided. The swellings did not recur after exercise. The bull was examined eight weeks later and its action was completely sound.

Acknowledgment.—The author of this article wishes to thank the directors and staff of Osmond Pharmaceuticals Limited for the free supply of ACTH with which he completed the experiment.

REVIEW

[Bandoola. J. H. WILLIAMS. Illustrated by Henry C. Pitz. Rupert Hart-Davis, Soho Square, London. Price 15s.]

Did you read "Elephant Bill"? If you enjoyed it did you ever stop to think why? The wide popularity which this book enjoyed still remains inexplicable to many people. Perhaps it was that the author succeeded so well in creating for the reader that intangible mystic atmosphere which is so much part of the jungle. Even amongst the events of the every day, adventure seemed to be always just round the corner. The pregnant silences of the jungle became almost tangible, and the teeming life of the undergrowth with its wild beasts and elephants became a reality.

In his new book there is somewhat more drama, and the vividness of life in the jungle carries more contrast. Williams succeeds once again in taking us out of ourselves and dropping us in the remote parts of Burma where we live with him and share his doubts, hopes and fears.

There is no special plot, but rather a series of events woven loosely around the fabulous elephant "Bandoola"—gigantic in stature, strength and spirit. He provides the thread upon which the pearls are strung. Born under the care of an adoring oozie he nevertheless suffers the strange fate of dying by that same hand—just one of those many examples characteristic of the make-up and unpredictability of the Burmese. But the sprites of the jungle might be heir to anything, and in the uncertainty of existence always present in the atmosphere, the unusual may well become the normal. Eccentricities are encouraged and characters created; and what better backcloth could there be than that of the jungle?

Whilst there are many moments of great excitement, such as the dash down the Yoo Rapids and being held for over an hour in the grip of a whirlpool, and hopelessly watching the man-made bonds steadily breaking under the all powerful rage of an elephant in musth, even the casual incidents of life in the jungle achieve a glamour under the surprisingly simple style that Williams has attained in the telling of his story.

THE VETERINARY RECORD

April 10th, 1954

FARM PRICES AND THE PROFESSION

THE recent White Paper* on agricultural prices and guarantees makes it clear that with the ending of food rationing and the operation of an uncontrolled market, a perceptible change is about to occur in the Government's attitude to farming. "In future," says the White Paper, "home agriculture cannot be asked to produce a given amount of a particular commodity irrespective of cost. To do so in present circumstances would place an undue strain on the national economy." The watchwords, from now on, are to be more efficient husbandry and higher quality.

That which concerns farmers can scarcely fail to concern the profession. Not only is the prosperity of our clients a matter of moment to us, but the new efforts they are called upon to make have far-reaching professional implications. Improved methods of husbandry, more effective feeding techniques, and an extension of progeny testing, particularly for poultry and pigs, are specifically mentioned in the White Paper. Veterinary surgeons have an indispensable contribution to make to each of these things, and it is earnestly to be hoped they will be called upon. To quote from an article published in this journal 12 years ago, "It is essential that the farmer consults his veterinary surgeon regularly and frequently, that he appreciates the true value of professional advice as distinct from treatment (and) that he learns that proper advice is often far more valuable that a bottle of medicine."

No official mention is made of disease conditions on the farm; but these cannot be divorced from the general problem. Good husbandry, economy and efficiency have notable advances to make while the annual losses caused through disease are in the region of £80,000,000. Our research has great achievements to its credit, but the new situation must be regarded as a stimulus to endeavour. In the allied fields of nutrition and digestive disorders the British Veterinary Association has already accumulated valuable information from the two grassland conferences arranged by the Technical Development Committee; and it looks forward to useful results from the conference on nutrition arranged to take place in the autumn. The exchange of practical information between practitioners, and its interpretation in the light of research gain in importance as each new problem comes into view.

In this connection it may be observed that the difficulty too often experienced in obtaining for test drugs evolved abroad, notably in America, is an obstacle the Government might help to overcome. To say this is not to belittle the great work done by British chemists. But if every weapon is to be brought to bear in the battle for increased efficiency, then we should not be left in ignorance of the value of products used by our colleagues overseas. Nor can we fail to remark, while referring to facilities enjoyed by others, upon the disability under which the profession labours in not being permitted facilities for *ante-* and *post-mortem* inspection at slaughterhouses. This is an all too familiar theme. Nevertheless, the importance, both to the research worker and the veterinary surgeon in the field, of having precise information on the newly slaughtered animal cannot be too strongly or too frequently stressed. It is indissolubly coupled with that very efficiency and improved husbandry the Government declare themselves so anxious to promote.

The place of the veterinary surgeon in the life of the community, and the services he renders to it, are still imperfectly understood and appreciated. If the profession's knowledge and skill are called upon to the extent they ought to be under the new dispensation there will be increased opportunity for public service, and, let us hope, for public recognition. Certainly the ideal of cheaper food of better quality can only be achieved if we are given full opportunity by the Government and by the agricultural industry—and if we grasp the opportunity when it comes.

* Agriculture Act, 1947. Annual Review and Determination of Guarantees, 1954.

ABSTRACTS

Digestion in the Ruminant*

This review summarises most of the work done on ruminant digestion in the United Kingdom during the last five years.

It appears that the reticulum and rumen are controlled by an extrinsic nerve supply from a centre in the medulla oblongata, the vagi carrying both afferent and efferent components of the controlling reflexes. The efferent limb of the oesophageal reflex seen especially in young ruminants is also situated in the vagal nerves. The splanchnic nerve plays no essential rôle in the control of the ruminant stomach. Injection of acetylcholine inhibits reticulo-ruminal movements but carbaminoylcholine chloride (0·01 to 0·02 mg. per kg.) inhibits reticular movement and stimulates ruminal movement.

The movement of food from the rumen depends upon particle size, small particles passing to the abomasum more quickly. In hay-fed sheep abomasal contents flow to the duodenum at the rate of 500 ml. per hour, of which 40 to 66 per cent. appears to consist of secreted gastric juice. This is corroborated by the flow of gastric juice from an abomasal "pouch."

The chemical changes which take place in the rumen are discussed. Dietary protein yields ammonia which may be utilised by the ruminal flora, if a soluble carbohydrate is also available, or it may possibly be absorbed directly. Casein has been shown to yield iso-butyric and iso-valeric acid as well as ammonia. Saliva with its constituent urea probably makes a considerable nitrogen contribution to the ruminal liquor. Rumen organisms decarboxylate succinic acid in the formation of propionic acid. Polysaccharides are synthesised by ciliates in the rumen, but these are utilised for the formation of fatty acids; only a few grammes of sugar pass to the duodenum daily.

Butyrate is probably utilised by the ruminal epithelium and becomes the main source of ketone bodies with acetic acid of less importance in this respect. The ruminal epithelium has been shown to be a selective membrane of great importance, not only in the differential absorption of fatty acid, but of sodium, potassium, phosphate, chloride and water.

F. R. B.

* **Digestion in the Ruminant.** Phillipson, A. T. (1953). *Int. Vet. Cong., Stockholm, Proc. Part I.* 1. 518–524.

Biochemistry and the Investigation of Animal Diseases*

In this review of the rôle of biochemistry in veterinary medicine Professor Seekles extends the views which he elaborated in the Fison Lectures, 1948. The extreme difficulty of making a clinical diagnosis on symptoms alone is emphasised, for a similar set of symptoms may be common to a number of diseases. To make progress the biochemist must be provided with adequate case histories and records of symptoms, so that he can correlate his analytical findings, not only with the actual disease, but also with the stage in the evolution of the full range of symptoms.

The importance of the biochemist increases with the demand for higher production of animal products which has reached such a pitch that the " biological equilibrium " of the animal is easily disturbed (*e.g.*, grass tetany, milk fever). In such disequilibrium of the metabolic processes the biochemical effects do not necessarily cause morphological change demonstrable by classical methods, although the recently introduced techniques of histochemistry will probably be of value in showing changes in cytoarchitecture. Histochemical methods could be the means of revealing the dynamic events occurring within the cell as a result of disease processes.

During the last 10 years workers in Professor Seekles' Laboratory at Utrecht have been investigating the condition of paresis which is common to milk fever and lactation tetany. Although a great deal of effort had been expended in investigating factors such as the cholinesterase activity, and the level of calcium and magnesium in blood and tissues, the results have been disappointing. This was partly due to difficulties in technique in estimation of calcium and magnesium ions in biological material. More recently, however, utilisation of biochemical methods developed at Utrecht have shown that there was a difference in calcium metabolism in these two conditions. Examination of the calcium ion level in blood ultrafiltrates shows a much greater fall in the case of milk fever than in grass tetany.

A comparison between the condition of grass tetany in Holland and Norway shows an analogy between the two syndromes since both show a hypomagnesaemia.

In Holland, however, the disease frequently becomes apparent in the first week of grazing certain pastures, whereas in the cases reported by Ender and his collaborators in Norway, symptoms did not develop until the animals had been several months on a low-magnesium and low-energy diet. Professor Seekles points out that in the majority of cases in Holland a deficiency of magnesium could be excluded and that in only a few areas on poor sandy soils was there a possibility of grass tetany being associated with a magnesium deficiency. He discusses the possible relationship between autointoxication and hypomagnesaemia and suggests that release of excess of histamine in states of autointoxication upsets the magnesium-regulating mechanism presumably localised in the brain.

The release of histamine can also occur in other disease syndromes, for example in strongylosis, grass disease, in many forms of gynaecological disorders, and to some extent in acetonaemia and milk fever. This has been proved by an examination of histamine levels of the blood in cattle and horses. It is interesting to note that in the horse a fall in the histamine level occurs more frequently, but in both species a fall can be regarded as an unfavourable sign in prognostication. Variations in the blood levels of chlorine, sodium, and glucose also occur, like that of histamine, during the course of a disease process. These changes in blood level may indicate an interference in liver and fat metabolism and possibly a fatty infiltration of the liver. A condition of acidosis, and less often, of alkalosis may result from such a metabolic disfunction, particularly when protein catabolism is disarranged within the alimentary canal.

Professor Seekles suggests that the condition of " stress " is of great importance because of the resultant changes in the electrolyte, hormonal and neural state of the animal. In the same way allergic conditions which are so common in animals are probably a manifestation of disorganised metabolism which can only be investigated by means of biochemical techniques.

F. R. B.

* **La Biochimie, Moyen d'etudier et de combattre les Maladies Animales.** Seekles, L. (1953). *Int. Vet. Cong., Stockholm.* No. XV.

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Intestinal Synthesis of Carotene*

The ratio of carotene to a non-digestible reference substance lignin, was estimated by analysis of the ingesta taken from different points along the alimentary tracts of four sheep. Very adequate precautions were taken to ensure that variations in the carotene : lignin ratio was not due to partial digestion of the lignin or the inclusion in the carotene estimations of non-carotene pigments.

The carotene : lignin ratio compared with the ratio shown by ingested grass decreased from the rumen to the jejunum, indicating an absorption of carotene, but rose again in the ileum and caecum. Between the caecum and rectum a secondary fall usually occurred in the carotene : lignin ratio. This trend was found in all four sheep, one animal showing a marked increase (114 per cent.) in carotene excreted compared with carotene ingested.

It would appear that in the sheep, in contrast to man, carotene is actually synthesised in the ileum and caecum. This hypothesis is reinforced by the fact that micro-organisms, as yet unidentified, when removed aseptically from the caecum and cultured on a solid agar medium synthesised the vitamin.

F. R. B.

* **The Apparent Intestinal Synthesis of Carotene in Sheep.** McGillivray, W. A. (1951). *Brit. J. Nutr.* **5**. 223–228.

YORKSHIRE DIVISION ANNUAL DINNER AND DANCE

The Yorkshire Veterinary Society held its annual dinner and dance on Friday, March 26th, 1954, at the Parkway Hotel, Leeds. The evening was a complete success with 126 members and friends present. After an excellent meal the loyal toast was proposed by the President, Mr. F. Lofthouse. The toast to the Society was proposed by Professor Glover, President of the Royal College of Veterinary Surgeons, who coupled with it the name of the Society's President. The reply was made by Mr. H. B. Allan. The toast to the guests proposed by the Society's President was responded to by Professor Bywater, of Leeds University, and Mr. A. Thomson, President, British Veterinary Association. As well as the speakers and their wives, Mr. and Mrs. E. Greenwood were guests of the Society. Dancing was enjoyed afterwards and the Scottish element in the Society (and others) were able to have their " fling."

K. G. T.

REPORT

[New South Wales, Department of Agriculture: Livestock Health Report No. 27.]

This report, which has been compiled by Dr. W. L. Hindmarsh, Chief of the Division of Animal Industry, records the incidence of disease in stock, and the research work that was accomplished during the year ended June 30th, 1951. This is the first of the post-war reports to appear in printed form, and it is unfortunate that its publication should have been so long delayed; for its contents, although presented in an abridged style, make interesting reading, and indicate the valuable contributions to veterinary science that are being made in New South Wales. Space does not permit the mention of more than a few of the many topics that are reviewed, but the following are among the more interesting points incorporated.

Tuberculosis.—Use has been made of the short thermal test described by the C.S.I.R.O., and it is suggested that the test has a definite place in the selection of infected cattle which have given an indeterminate result to the intracutaneous test.

Brucellosis.—In some herds up to 20 per cent. of calves vaccinated with Strain 19 have been found still to give a significant serological reaction at two to three years of age. This is regarded as an embarrassment to stud breeders who are unable to sell such animals as negative reactors.

Blackleg.—A widespread mortality in calves on the coast and the highlands has occurred despite vaccination. Mortality of up to 25 per cent. has been recorded in some districts. There is no explanation of the unsatisfactory results obtained with the vaccine concerned.

Johne's Disease.—The incidence appears to be negligible, there being only one recorded case in the year under review.

Infectious Ophthalmia.—This appears to be prevalent in both sheep and cattle in some districts, the greatest incidence being at mid-summer. Treatment with astringents, colloidal silver preparations and antibiotics does not appear to influence the course of the disease, although it may have some effect in reducing secondary infections, especially when flies are prevalent.

Metabolic Disorders of Cattle.—The growing incidence of these disorders and the appearance of varying forms is in keeping with similar trends in Great Britain. Nutrition research laboratories have been erected at the Glenfield Veterinary Research Station for the pursuit of basic studies on digestive processes in the cow.

Leptospirosis.—It has become evident that this infection is widespread, and may account for the disease hitherto referred to as redwater in calves among coastal dairy herds.

External Parasites in Sheep.—More cases of mite infestation (*Psorergates* sp.) have been detected, and it would seem that this parasite is more widely spread than was first thought.

Internal Parasites of Sheep and Cattle.—The value of regular dosing practices appears to have been established from widespread observations in the field. It is of interest to note that fatal fluke infestation is thought to have occurred in kangaroos.

Grass Seed Infestation of Sheep.—The heavy growth of pasture, with resultant heavy seeding of grasses, causes many losses of young sheep and lambs from grass seed penetration of the skin. Countless thousands of seeds of spear grass, corkscrew grass and other species may be found in the skin of a single animal. The abscess formation which follows causes pyaemia and death. In some cases the subcutaneous abscesses on the head involve the facial sinuses.

Mycotic Dermatitis.—This is very prevalent, and it is believed that the causal fungus may be a common inhabitant of the fleece. Lambs tend to suffer severely, especially when becoming flystruck.

Diseases of Pigs.—An outbreak of Glassers disease has been reported.

Poultry Diseases.—Among fowls, leucosis is a major source of loss, while coryza is widespread. There is still a great neglect of nutritional factors, and both rickets and nutritional roup cause severe losses. Blackhead and moniliasis are the major sources of loss among turkeys.

IN PARLIAMENT

House of Lords: Third Reading of the Pests Bill

Lord Carrington, Parliamentary Secretary, Ministry of Agriculture, moved the third reading of the Pests Bill.

Lord Elton said that the Bill would cause an indefinite further extension of the life of the gin trap, and would legalise for a further period the practice of commercial trapping which resulted in the multiplication and diffusion of the rabbit pest. Having referred to what he regarded as the inhumanity of the gin trap, Lord Elton added that a number of scientists, landowners and farmers were convinced from experience that it was pointless to wait for the abolition of the gin trap until there was a fully effective humane substitute.

Lord Carrington said that everyone agreed the gin trap was cruel and they all wanted to abolish it. The Ministry felt, however, that as the department responsible for food production, they could not ban the use of the gin trap until an equally efficient humane substitute had been found. When it was found they would take the necessary steps.

The Bill was read the third time and passed.

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Questions

Jaw Abnormalities in Cattle

Mr. Baldwin (March 30th) asked the Minister of Agriculture, in view of the fact that the matter is one of conformation and not genetical, and that this is agreed by cattle breed societies, if he will take steps to ensure that decisions as to jaw formation in cases where a breeder wishes to appeal against the judgment of the licensing officer, shall be referred to the breed referee and not to a veterinary officer.

Sir T. Dugdale: While I do not accept the view that jaw abnormalities in cattle are not genetical defects, I am arranging for research to be conducted into the extent to which this condition is inherited. It is the present practice for a decision to refuse a licence for a bull on these grounds to be taken on veterinary advice, and for this reason it is appropriate that the referee selected to inspect the bull if the owner appeals should be a veterinary surgeon.

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Licensing of Boars

Sir A. Bossom (March 30th) asked the Minister of Agriculture to issue a statement to farmers clarifying the position regarding the licensing of cross-bred boars, which at the moment is causing uncertainty.

Sir T. Dugdale: Since the object of licensing is to ensure that boars used for breeding are likely to beget progeny conforming to the same breed type, it is my policy, as that of my predecessor, to license only those boars which are pure-bred. My inspectors are, therefore, instructed to refuse licences for cross-bred boars. The owner of a rejected boar has the right to appeal to an independent referee.

Slaughtering Facilities

Mr. Willey (March 29th) asked the Minister of Food when work will be commenced on the new slaughterhouse at Sunderland.

Major Lloyd George: Tenders have been received but, as the slaughterhouse obviously cannot be completed in time for it to be used by my Department, the Sunderland Corporation is being invited as the next step to discuss the plans and other aspects of the project.

Sir A. Bossom asked the Minister of Food whether he is aware of the continued difficulty experienced by farmers in getting their animals slaughtered at any place convenient to the Maidstone division of Kent; and whether he will take steps to remedy this situation.

Major Lloyd George: I am not aware of any difficulties, but if my hon. Friend has any specific cases in mind, perhaps he will let me have further particulars.

Mr. Hylton-Foster asked the Minister of Food what slaughtering facilities are available for the city of York; and what addition to the existing facilities can be made available when the rationing of meat comes to an end.

Major Lloyd George: Only one slaughterhouse in York is being used by my Department at the present time. All local authorities have been requested to take action to ensure the provision of adequate facilities to meet the requirements of the trade after decontrol, and a letter of guidance has been sent to them.

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Artificial Insemination

Mr. Remnant (April 1st) asked the Minister of Agriculture the reasons for the increase to £3 of deep-freeze bull semen by the Reading Cattle Breeding Centre within six months of their invitation to breeders to use this service; and whether he is satisfied that this charge will not press unduly on larger herds.

Sir T. Dugdale: The fee for insemination with deep-frozen semen from nominated bulls was originally fixed at 20s. because the service was experimental. As a satisfactory conception rate is being obtained, the fee has now been raised to the normal commercial level. I see no reason why the charge should press unduly on any breeder, because he can obtain the ordinary service for 20s. if he does not select a particular bull.

NOTES AND NEWS

Diary of Events

Apr. 11th.—Joint meeting of the South-East Midlands Division, B.V.A., and the Kettering and District Medical Association at Kettering General Hospital, 7 p.m.

Apr. 15th.—General Meeting of the Hertfordshire and Bedfordshire Division, B.V.A., at 70, Holywell Hill, St. Albans, 7.30 p.m.

Apr. 21st.—Meeting of the Royal Society of Medicine, Section of Comparative Medicine, at 1, Wimpole Street, London, W.1, 5 p.m.

Apr. 21st.—Ordinary Meeting of the Royal Microscopical Society at Tavistock House South, Tavistock Square, London, W.C.1, 5.30 p.m.

Apr. 23rd.—General Meeting of the Midland Counties Division, B.V.A., at the Star Hotel, Worcester, 2.30 p.m.

Apr. 23rd.—General Meeting of the Midland Counties Division, B.V.A., at the Star Hotel, Worcester, 2.30 p.m.

Apr. 23rd.—General Meeting of the Yorkshire Division, B.V.A., at the Royal Station Hotel, York, 2.30 p.m.

Apr. 28th.—Meeting of the Lancashire Division, B.V.A., at the Midland Hotel, Manchester, 2.30 p.m.

Apr. 28th.—Ordinary General Meeting of the South Eastern Division, B.V.A., at the Royal Star Hotel, Maidstone, 6.30 p.m.

May 1st.—Annual General Meeting of the Association of State Veterinary Officers in the Auditorium of the Wellcome Research Institute, 183-193, Euston Road, London, N.W.1, 2 p.m.

May 6th.—A symposium on "The Design of Animal Houses" at the Royal Society of Medicine, 1, Wimpole Street, London, W.1, 10.45 a.m.

Sept. 19th—25th.—72nd Annual General Meeting and Congress of the British Veterinary Association at Torquay.

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B.V.A. Council and Committee Meetings at the University of Glasgow

Monday, April 12th
10.30 a.m. Veterinary State Medicine Committee.
2.15 p.m. Home Appointments Committee.
3.30 p.m. Parliamentary and Public Relations Committee.

Tuesday, April 13th
10.30 a.m. Organising Committee.
1.45 p.m. General Purposes and Finance Committee.

Wednesday, April 14th
10.0 a.m. Council Meeting.

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PERSONAL

Birth.—Goodwin.—On April 2nd, 1954, to Anne Elizabeth, wife of R. Goodwin, M.R.C.V.S., a daughter—Elizabeth Maude.

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Marriages.—Hesketh—Newling.—On April 3rd, 1954, at St. Mathias Church, Torquay, William C. Hesketh, M.R.C.V.S., only son of Mr. and Mrs. W. O. Hesketh, of Winterbourne, Torquay, to Elizabeth Meredith Newling, only daughter of Mrs. Gladys Newling and the late Mr. Newling, of the Grange, Babbacombe.

Ormiston—Fleming.—On March 25th, 1954, at the Church of Our Lady of the Rosary, Sutton, Thomas Tindall Ormiston, B.Sc., M.R.C.V.S., to Helen Elizabeth Fleming, B.Sc., M.R.C.V.S. Mr. Hugh Palmer, B.Sc., M.R.C.V.S., was the best man.

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Forthcoming Marriage.—Seamer—Wood.—The engagement is announced between John Seamer, B.Sc., M.R.C.V.S., D.V.S.M., of Wildfields, Clenchwarton, King's Lynn, and Shirley Ann Wood, of North Beeches, Bluehouse Lane, Limpsfield, Surrey.

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R.C.V.S. OBITUARY

Irvine, Joseph Knox, of 110, West Savile Terrace, Edinburgh. Graduated Edinburgh, July 10th, 1918. Died March 27th, 1954; aged 62 years.

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W. A. Doughty, M.R.C.V.S.

An Appreciation

Those of us who knew W. A. Doughty are saddened by his death; we have lost a friend, and the profession a worthy member.

In spite of the tragic death of his only daughter at an early age and the death of his wife, he was a gentleman of great spirit. He possessed a profound sense of humour and an infectious enthusiasm for his work. No service was too good for his clients, who so obviously admired and respected him. Because of these qualities he was an ideal extra-mural teacher who could inspire confidence and self-reliance in the somewhat apprehensive student. To "see practice" with Mr. Doughty was to study the Art of Veterinary Medicine.

We are fortunate who knew him. C. R. C.

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Brigadier C. A. Murray, C.B.E., M.R.C.V.S.

A Personal Tribute

Brigadier Charles Murray, whose death occurred on March 27th after a short illness, joined me as a colleague in greyhound practice during the war after his retirement from the R.A.V.C. He threw himself wholeheartedly into his new work, and to my great amazement he grew more and more keen. He developed an interest in the breeding, training and racing of greyhounds to such an extent that he could talk with authority on the subject to anyone.

I found him a delightful companion and a very loyal friend for 11 years. His administrative experience in the "Corps" stood him in great stead and, on occasion, I was able to leave him with what is, at times, a "tricky job," knowing full well that his sound common sense would keep the ship on an even keel.

We all loved him, and the large staff who came in contact with him in his civilian life mourn his passing—only three weeks after the loss of John Going. Truly they were two very charming colleagues and we are very proud to have known them.

Our sympathies go out to his sorrowing widow and delightful family. The family life counted for everything in Charles Murray's affairs and he was never happier than when they were all at home with him.

J. K. B.

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RETIREMENT OF SIR JAMES SCOTT WATSON AND APPOINTMENT OF PROFESSOR H. G. SANDERS

Sir James Scott Watson, C.B.E., LL.D., D.SC., Chief Scientific and Agricultural Adviser and Director-General of the National Agricultural Advisory Service in the Ministry of Agriculture and Fisheries, will retire from the Public Service at his own request on December 31st next, shortly after reaching the age of 65.

Professor H. G. Sanders, M.A., PH.D., Professor of Agriculture, Reading University, has been appointed to succeed Sir James Scott Watson as Chief Scientific and Agricultural Adviser to the Ministry. He was an Assistant in Physiology at the Animal Nutrition Institute, School of Agriculture, Cambridge, from 1929 to 1944, and he also held the post of University Lecturer in Agriculture. From 1938 to 1944 he was a Fellow of St. John's College, Cambridge, and during the war he served as an Executive Officer to the Hertfordshire War Agricultural Executive Committee. He is now a member of the Agricultural Improvement Council.

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ELECTION OF DR. R. F. GORDON AS PRESIDENT OF THE WORLD'S POULTRY SCIENCE ASSOCIATION

The World's Poultry Science Association held its annual general meeting in the Royal Veterinary College, London, on March 26th. It was then announced that Dr. R. F. Gordon, M.R.C.V.S., had been elected President of the United Kingdom Branch for the ensuing three years, and that Dr. Horton Smith had been elected to the Executive Committee.

The World's Poultry Science Association will hold its three-yearly congress in Edinburgh in August of this year, but Dr. Gordon will not take up the presidency until after this has been concluded.

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SMALL-ANIMAL PROBLEMS

Members will probably have seen in the Supplement to the March 20th issue of *The Veterinary Record* that the Technical Development Committee has been enlarged by the alteration of a by-law on a special resolution of the Council. Six extra members with a particular interest in small-animal problems have been appointed, and at a special meeting of the whole Committee it was decided to make a survey of the incidence and distribution of disease in small animals throughout the country.

The Committee would be glad if members would help in this work by notifying *the General Secretary, B.V.A., 7, Mansfield Street, Portland Place, London,* of the SIX most important diseases or conditions seen in their own practices—in order of importance if possible—indicating whether the importance is due to the number of animals affected or to the high rate of mortality.

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ERRATUM

We apologise for the fact that a notice which appeared in "Notes and News" section of *The Veterinary Record* of February 13th, 1954, in connection with the B.R.X. Club was headed "B.R.X. Club, Bristol University." The announcements which were inserted in the "Notices" columns of our issues of March 6th and 13th carry the amended caption and we regret the misinterpretation which arose.

VETERINARY DEGREES IN THE REPUBLIC OF IRELAND

A treaty bearing directly upon matters of professional interest was signed on April 6th between the United Kingdom and the Republic of Ireland. Having regard to the fact that the Veterinary Surgeons Act (1952) of the Republic of Ireland has established a system for the registration of veterinary degrees similar to that which obtains in the United Kingdom, the purpose of the treaty is to permit holders of the Republic of Ireland degrees to be included in the Register of Veterinary Surgeons in the United Kingdom. This will ensure the official continuance of a system which has prevailed hitherto.

The treaty also provides for such matters as the payment of annual fees by veterinary surgeons residing on both sides of the border, as well as for continued representation on the Council of the Royal College of Veterinary Surgeons. In addition, it is expected to set up a system of university representatives such as already exists in the United Kingdom.

This matter will go before Parliament as an Order in Council during the course of the next few days, but will require the sanction of both Houses of the Parliament of the Republic of Ireland. Fuller details of the treaty will be published in a later issue of the *Record*.

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THE UNIVERSITY OF LIVERPOOL

Examination List, March, 1954

FACULTY OF VETERINARY SCIENCE DEGREE OF B.V.Sc.

THIRD EXAMINATION

Part II

Adams, D. V. N.	Gleave, P.
Bate, T. C.	Greenwood, J.
Blair, Ruth J.	Hudson, G.
Boyd, R. W.	Potts, R. R.
Caldwell, B. A. W.	Sanford, J.
Chandler, N.	Scambler, J. D.
Clarkson, M. J.	Shepherd, P. R.
Copley, J. D.	Smith, M. W.
Evans, R. K.	Wallis, A. S.
Glaister, A. I. E.	Walters, T. M. H.

Part III

Adams, D. V. N.	Greenwood, J.
Bate, T. C.	Hudson, G.
Boyd, R. W.	Potts, R. R.
Chandler, N.	Sanford, J.
Clarkson, M. J.	Scambler, J. D.
Copley, J. D.	Smith, M. W.
Evans, R. K.	Wallis, A. S.
Featherstone, P.	Walters, T. M. H.
Freeman, A. P.	Wheeler, A. J.
Glaister, A. I. E.	Wood, J.
Gleave, P.	Wright, C. L.

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INTENSIVE SYSTEMS OF POULTRY FARMING

The post-war expansion of the poultry industry has seen the increasing use of various intensive systems of management. These have now assumed a dominant rôle in the industry. They were discussed by Mr. C. G. Stacey, the manager of the Animal Health Trust's poultry research station at Houghton Grange, at a meeting arranged by the Cambridgeshire A.E.C. and held at Sawston.

Mr. Stacey commenced by saying that the increasing cost of food, labour and overhead charges make it essential for the specialist poultry farmer to obtain an optimum food conversion rate, reduce his labour costs, and control the laying season to give egg production when prices are highest. These aims can be achieved by the use of intensive systems, which must be accepted as necessary under present-day conditions. Contrary to general belief, these systems can also be used for breeding stock.

The speaker said there are four truly intensive systems in use to-day: the laying battery, the deep litter system, the henyard system and the raised slatted floor system. The choice of a system must depend upon the buildings, land and capital at one's disposal, the supply of material for litter, and the degree of skill available.

The conversion of an existing building for use as a deep litter house may cost as little as 4s. per bird. Labour costs are also low, as one man can look after 2,000 birds. One can expect a good egg yield, which is maintained both in winter and in the hot weather. The chief disadvantage of the system is that vices such as feather picking and cannibalism tend to develop. These are best treated by providing oats as a source of fibre. Handling and culling of the birds are difficult, and high concentrations of roundworm eggs and coccidial oocysts tend to build up in the litter. These can be overcome by stacking the litter for six to eight days to heat it.

The hen yard system is very useful on general farms where there is an ample supply of straw or threshing wastes for use as litter. Buildings such as bullock yards can be converted at very low cost. Handling and culling are again difficult, but vices are less prevalent than on deep litter.

The chief advantage of the laying battery system is that comparatively little skill is required to manage it successfully. Birds of different ages can be kept in the one house without bullying or the development of vices. Parasitic worm infestation is at a minimum as there is little opportunity for reinfestation. One can expect a good yield of eggs which will require little washing; handling and inspection of the birds is simple, their egg yield is easily recorded and, when they are culled, the carcases are tender and command a good price.

The main disadvantage is the high initial cost. The cages may cost from 15s. to £3 per bird. Both the food consumption and the labour costs tend to be high. Care must be taken to provide a fully balanced diet.

The raised slatted floor system has been developed at Houghton Grange to convert fold units and similar buildings into intensive houses. Slatted or wire mesh floors are fitted, and the houses raised 18 inches on concrete blocks. The speaker said that this system is very successful.

Mr. Stacey's talk was preceded by the showing of two B.O.C.M. films which provided useful illustrations of a deep litter house and of various forms of battery cages. The mechanical methods of cleaning the dropping trays of laying batteries were especially interesting. E. A. G.

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PIG PROGENY TESTS

The results of the first tests carried out at the progeny testing station of the National Pig Breeders' Association, at Thorpe Willoughby, near Selby, were made known recently. They indicate substantial initial progress in a scheme which will enable British bacon producers to compete on more level terms with those in Denmark and other continental countries in the production of cheaper and better carcases.

Breeders may send for testing litters of four—two hogs and two gilts—of any of the bacon breeds, an important qualification being that they must be from a litter of which at least eight have been reared. After the tests each breeder receives details of the speed of growth, the ratio of food conversion based on the amount of food consumed for each pound gained in weight, the killing-out percentage, and percentage of cured bacon. By comparing these figures with the average for the breed the breeder is able to ascertain the prolificacy of the boar being used.

The initial results are encouraging. The first litter showed a food conversion ratio of 3·3, which compares favourably with the Danish ratio of 3·15 and more than favourably with that of 4·13 when the Danes began progeny testing 40 years ago. The daily liveweight gain of this initial litter was 1·19 lb. for the 173 days from birth to slaughter.

It is hoped eventually to have similar testing stations in all parts of Britain.

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ADDRESSES OF DISEASE-INFECTED PREMISES

The list given below indicates, first, the county in which are situated the premises on which disease has been confirmed, followed by the postal address and date of outbreak.

ANTHRAX:

Ches.—Reynolds Farm, Sandbach Heath, Sandbach; Church Farm, Churton, Chester (Apr. 1).

Glouc.—Park Farm, Tewkesbury (Apr. 1).

Lancs.—Uglow Farm, Edgewirth, Nr. Bolton (Apr. 3).

Lanarks.—Carlindean Farm, Carnwath (Apr. 3).

Renfrew.—North Dennistoun Farm, Kilmalcolm (Mar. 30).

Yorks.—Mill Farm, Speeton, Filey (Mar. 30); Hall Farm, Ravenfield, Rotherham (Apr. 3).

FOWL PEST:

Lancs.—Mercer Farm, Grange Lane, Hutton; Wyre View, Garstang Road, St. Michaels; Peddington House, and "Greenacres," Moss Lane, St. Michael's-on-Wyre, Preston (Mar. 30); Walmers Hall Farm, Dob Lane, Little Hoole, Preston; Hawthorns Farm, Gill Lane, Longton, Preston (Mar. 31); Roycroft, Moss Lane, St. Michael's, Preston; Sherdley Farm, Ratten Lane, Hutton, Preston (Apr. 1); Parkers Farm, Grange Lane, Hutton (Apr. 3); Maisa House, Station Road, Little Hoole (Apr. 4).

London.—22, Richard Street, E.1 (Mar. 31).

Norfolk.—The Flat, Lenwade House, Gt. Witchingham, Norwich; Church Farm, Caston, Attleborough; Walnut Tree Farm, The Street, Bunwell, Norwich (Mar. 30).

Rutland.—The Noel Arms, and Growcock, Ridlington, Uppingham (Mar. 30).

Surrey.—Norfolk Farm, Pyrford, Woking (Mar. 30).

Yorks.—Thurston Clough Farm, Delph (Apr. 3).

SWINE FEVER:

Cambs.—Wort's Farm, Landbeach (Mar. 31); Green Knoll, Guilden Morden, Royston (Apr. 1).

Ches.—Peel Hall Farm, Antrobus, Northwich; Pump House Farm, Scholar Green, Stoke-on-Trent (Mar. 29); Top House Farm, Shocklach, Malpas (Mar. 30); Little Tidnock Farm, Cawsworth, Macclesfield (Mar. 31); "Sunnyside" Piggeries, Arterial Road, Great Sutton, Wirral (Apr. 1); Pinfold Lane Farm, Handbridge, Chester; Cranberry Moss Farm, Crewe Road, Alsager, Stoke-on-Trent (Apr. 2); Cnerry Tree Farm, Morley, Chester (Apr. 3).

Cornwall.—Stibb Farm, Kilkhampton, Bude (Apr. 2); Coombe Mill, Morwenstow, Bude (Apr. 3).

Derby.—Meadow Farm, Meadow Lane, Chadderton, Derby (Apr. 2).

Fife.—Methes East, Strathmore Farm, Thornton (Apr. 2).

Flints.—The Croft, Whitchurch Road, Bangor-on-Dee, Wrexham (Mar. 29); Sandy Lane Farm, Saltney, Chester (Mar. 31); Plas Major, Llong, Mold (Apr. 1).

Kent.—Morants Court Farm, Chevening, Sevenoaks (Mar. 29).

Lancs.—Grinton Lodge Farm, Church Road, Huyton-with-Roby, Liverpool; Brookhouse Farm and Chapel Farm, Netherton, Liverpool (Apr. 2).

Lincs.—Mount Lane, Kirkby Laythorpe, Sleaford (Mar. 30).

Norfolk.—Windmill Farm, Ingworth (Mar. 31); Willow Cottage, Eve Lane, East Rudham, King's Lynn (Apr. 2).

Staffs.—Lloyd House, Stourbridge Road, Wombourne, Wolverhampton (Mar. 29).

Stirling.—No. 6 Holding, Longbank, Milngavie, Glasgow (Mar. 29).

Suffolk.—Smeathe Drove, Eriswell Road, Lakenheath, Brandon (Mar. 31).

Surrey.—Castle Mill, Reigate Road, Dorking (Mar. 31).

Worcs.—Hillview, Rushwick, Worcester (Apr. 1).

Yorks.—Kempfield House, Preston, Hull (Mar. 29); 449 Manor Lane, Sheffield, 2 (Mar. 31); Grange Farm, Wickersley, Rotherham (Apr. 1); Groves Farm, Howden, Poole; Magson House Farm, Luddenderfoot, Sowerby Bridge, Halifax (Apr. 2).

ADVERTISER'S ANNOUNCEMENT

New Streptomycin Preparation

Glaxo Laboratories Ltd. announce the introduction from April 5th of Streptovex, containing 8 grammes streptomycin sulphate in 8 fluid oz. of solution.

This product provides an economical and simple dispensing preparation of oral streptomycin for use in the treatment and prophylaxis of scouring conditions in calves, pigs and dogs.